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TAXONOMIC SUMMARY OF *ERYTHRANTHE* SECT. *ACHLYOPITHECA* (PHRYMACEAE)

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ABSTRACT

Mimulus acutidens and *M. grayi* have recently been treated as synonyms of *M. inconspicuus*, but all three species are amply distinct and non-intergrading while broadly sympatric. Each is treated here within the genus *Erythranthe* and together constitute sect. *Achlyopitheca*. Typifications, descriptions, county distributions, and a key to the species are provided.

KEY WORDS: *Mimulus*, *Erythranthe* sect. *Achlyopitheca*, *Erythranthe acutidens*, *Erythranthe grayi*, *Erythranthe inconspicua*

Grant (1924) described *Mimulus grayi* A.L. Grant and placed it in sequence between *M. acutidens* and *M. inconspicuus*. She noted (p. 205-206) that the latter "is the most common species in a closely related group of plants consisting of *M. inconspicuus*, *acutidens*, *latidens*, and *Grayi*. ... They all have ovate leaves closely sessile by a broad, 3–5-nerved base, strongly plicate, inflated mature calyces with short broad teeth, subglobose villous anthers, and stipitate capsules." All are annuals with purplish (to yellowish in *M. inconspicuus*) corollas. *Mimulus latidens* differs from the others in its glandular vestiture (vs. essentially glabrous) and is placed in a different relationship in an infrageneric classification (Barker et al. 2012, primarily following the phylogenetic hypothesis in Beardsley et al. 2004). In the classification of Barker et al., *M. inconspicuus*, *M. acutidens*, and *M. grayi* are treated in the genus *Erythranthe* Spach, where they constitute sect. *Achlyopitheca*.

Pennell (1951) and Munz (1959) recognized all three species of sect. *Achlyopitheca*. Thompson (1993), however, without comment, included *Mimulus acutidens* and *M. grayi* as synonyms of *M. inconspicuus*. Beardsley et al. (2004) observed that all three are distinct on the basis of molecular data and the present study confirms that observation on the basis of morphology. Differences among them might appear to be relatively subtle but they nevertheless are consistent. The geographic range of each of the three species is essentially restricted to the Sierra Nevada of California and all three occur in Fresno, Kern, Madera, Mariposa, and Tulare counties (Fig. 1). *Mimulus acutidens* and *M. grayi* have essentially congruent ranges and both are sympatric with the more broadly distributed *M. inconspicuus*.

Erythranthe sect. **Achlyopitheca** Nesom & Fraga, Phytoneuron 2012-n: 0. 2012. **TYPE**: *Erythranthe inconspicua* (A. Gray) Nesom

Annuals, stems, pedicels, leaves, and calyces usually glabrous, eglandular. **Leaves**: basal persistent as a rosette, cauline sessile to subsessile (proximal rarely short-petiolate), blades broadly elliptic to ovate or broadly ovate; fruiting pedicels usually longer than calyces. **Calyx** inflated in fruit, lobes shallowly deltate-mucronulate to deltate-apiculate, the apical calyx margin appearing subtruncate. **Corollas** usually rose to light lavender, less commonly yellowish, caducous, weakly bilabiate, lobes broadly obovate to oblong with deeply notched apices, ventral ridges yellow-lined. **Anthers** included, stamens minutely villous-hirsute, hairs sometimes reduced and papilliform. **Capsules** stipitate. Base chromosome number unknown.

1. Corolla tubes 5–9 mm, limbs expanded 5–6 mm (pressed); both anther pairs and the stigma at the same level (autogamous); fruiting pedicels 5–15 mm ..... **Erythranthe inconspicua**
1. Corolla tubes 8–12 mm, limbs expanded 7–12 mm (pressed); anther pairs at different levels, stigma slightly or well above upper anther pair (herkogamous); fruiting pedicels 6–7 mm or 10–23 mm.

2. Fruiting pedicels 6–7 mm, shorter than the subtending leaves ..... **Erythranthe grayi**
2. Fruiting pedicels 10–23 mm, longer than the subtending leaves ..... **Erythranthe acutidens**

Based on his field experience, Pennell (1951) provided further distinctions among them — the contrasts below are extracted from his key, with slight augmentation from Grant (1924).

1. Corollas yellowish to purple ..... **Erythranthe inconspicua**
1. Corollas purple.

2. Ventral ridges within corolla sharp, yellow against rosy background, finely pubescent ..... **Erythranthe grayi**
2. Ventral ridges of corolla less pronounced, the whole platform of the lower lip yellow and pilose ..... **Erythranthe acutidens**

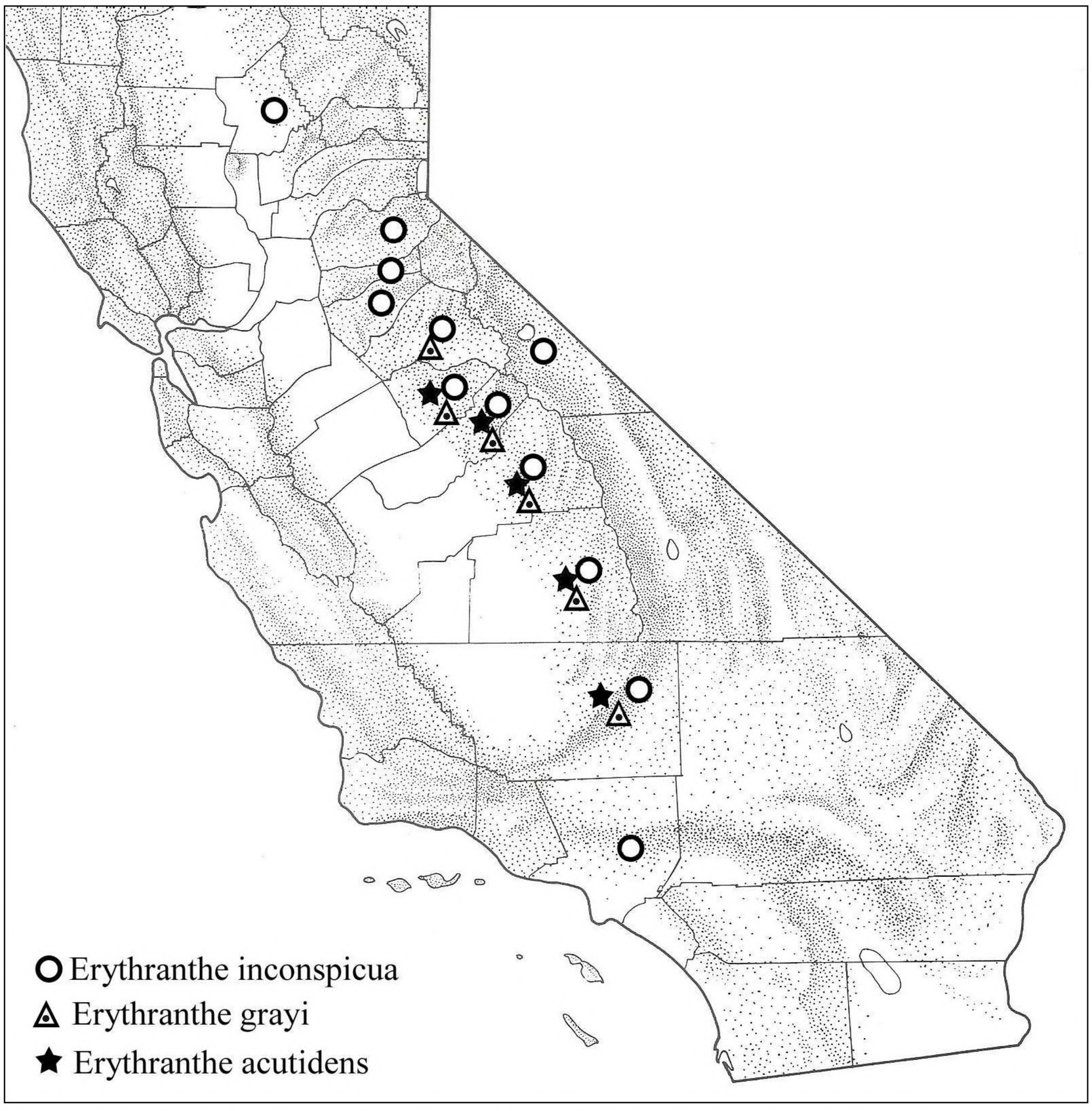

Figure 1. Distribution of *Erythranthe* sect. *Achlyopitheca*.

1. **Erythranthe inconspicua** (A. Gray) Nesom, Phytoneuron 2012-39: 34. 2012. *Mimulus inconspicuus* A. Gray, Pacific Railr. Rep. 4, Pt. 5, No. 4 (Whipple), 120. 1857. **TYPE: USA. California**. Los Angeles Co.: Los Angeles, damp hillsides, 14 May 1854, *J.M. Bigelow s.n.* (holotype: GH; isotype: US digital image!).

Annuals, fibrous-rooted. **Stems** erect to ascending, 3–16 cm, simple or branched from the base, 4-angled. **Leaves**: blades broadly elliptic to ovate or broadly ovate, 6–20 mm x 6–12 mm, palmately 3-veined, sparsely villous, apex obtuse to acute or acuminate, base rounded to cordate, margins subentire to denticulate; petioles (proximal leaves) 1–5 mm, midcauline and distal leaves epetiolate and sessile. **Fruiting pedicels** 5–15 mm, usually longer than subtending leaves. **Fruiting calyces** campanulate, 6–9 mm x 3–3.5 mm, lobes unequal to subequal, 0.5–1 mm, broadly deltate, ciliolate. **Corollas** pale pink to rose pink or purple to magenta, throat sometimes yellow, lobes sometimes yellowish with pale rose spots, tubes cylindric, 5–9 mm, exserted 1–3 mm beyond calyx margin, limb expanded to 5–6 mm (pressed). **Anther pairs** at essentially the same level, stigma at same level or below both anther pairs or in between them.

Flowering Apr–Jun(–Jul). Steep, N- or NW-facing slopes, canyon walls, moist talus, granitic sand on outcrops, moist gravelly open spots, sandy lake shores, hillside streams or seeps riparian woodland, grassy slopes, digger pine, yellow pine, yellow pine-Kellogg oak, chaparral, *Pseudotsuga-Pinus-Cornus*, canyon live oak; 200–2100 m; California (Amador, Butte, Calaveras, Eldorado, Fresno, Inyo, Kern, Los Angeles, Madera, Mariposa, Tulare, and Tuolumne counties).

The floral morphology of *Erythranthe inconspicua* indicates that it is autogamous; at least the smallest corollas appear to be cleistogamous.

2. **Erythranthe grayi** (A.L. Grant) Nesom, Phytoneuron 2012-39: 34. 2012. *Mimulus grayi* A.L. Lewis, Ann. Missouri Bot. Gard. 11: 203. 1924. **TYPE: USA. California**. Mariposa Co.: Mariposa, May 1882, *J.W. Congdon s.n.* (holotype: GH; isotype: PH!).

Annual, fibrous-rooted. **Stems** erect, 8–20 cm, simple or branched from the base, slightly 4-angled. **Leaves**: blades broadly ovate, 7–18 mm x 5–12 mm, palmately 3–5-nerved, margins denticulate, apex acute, base rounded, sessile, glabrous or rarely sparsely puberulent. **Fruiting pedicels** 6–7 mm, shorter than subtending leaves. **Fruiting calyces** campanulate, 9–11 mm x 5–6 mm, sometimes densely papillate at flowering with tiny, 1-celled, eglandular hairs, these apparently deciduous by fruiting, lobes deltate-apiculate, ciliolate. **Corollas** rose red with pink throat lined with rose-red and with a yellow patch, ventral ridges yellow, tubes cylindric-funnelform, 8–11 mm, exserted 3–5 mm beyond calyx margin, limb expanded 7–10 mm (pressed). **Anther pairs** separated; stigma slightly above or at same level as upper anther pair.

Flowering May–Jul(–Oct). Drying pond beds, creek banks, yellow pine, yellow pine-libocedrus; 1000–1900 m. California (Fresno, Kern, Madera, Mariposa, Tulare, and Tuolumne counties).

In addition to features noted in the key and descriptions, the fruiting calyces of *Erythranthe grayi* are distinctly more inflated than those of *E. acutidens* and *E. inconspicua*.

3. **Erythranthe acutidens** (Greene) Nesom, Phytoneuron 2012-39: 34. 2012. *Mimulus acutidens* Greene, Bull. Calif. Acad. Sci. 1: 117. 1885. *Mimulus inconspicuus* var. *acutidens* (Greene) A. Gray, Syn. Fl. N. Amer. (ed. 2) 2(1): 450. 1886. **TYPE: USA. California**. [Fresno Co.:] King's River Mountains, 4000 ft, Apr 1877, *Dr. G.A. Eisen s.n.* (holotype: GH).

Annuals, fibrous-rooted. **Stems** erect to ascending-erect, 7–20 cm, simple to diffusely branched, 4-angled. **Leaves**: blades ovate to broadly ovate, 10-20 mm x 7-11 mm, palmately 3-5

nerved, margins serrate denticulate, apices acute, base rounded to truncate, sessile. **Fruiting pedicels** 10–23 mm, divergent-arcuate, sometimes becoming deflexed, longer than subtending leaves. **Fruiting calyces** campanulate, 7–9 mm x 3–4 mm, lobes subequal to unequal, 0.5–1 mm, deltate, ciliate. **Corollas** pale pink to rose purple, tubes cylindric-funnelform, 9–12 mm, exserted 4–5 mm beyond calyx margin, throat yellow or "deep pink on the outside with two yellow spots below the lower lip," limbs expanded 9–12 mm (pressed). **Anther pairs** separated; stigma slightly to well above level of upper anther pair.

Flowering Apr–Jul. grassy slopes, sandy terraces, marshy places, lake shores, creek sides, seep edges, shaded canyon slopes, road cuts and roadsides, woodlands of *Pseudotsuga menziesii-Quercus chrysolepis*, oak-digger pine, interior live oak; 200–2000 m; California (Fresno, Kern, Madera, Mariposa, and Tulare counties).

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